Patent claims:

1. An expandable pelletized styrene polymer material having a bi- or multimodal molecular weight distribution, which, based in each case on the entire styrene polymer content, comprises

   i) from 0.1 to 30% by weight of a styrene copolymer with a weight-average molar mass M_w in the range from 1000 to 20 000 g/mol, and
   ii) from 99.9 to 70% by weight of standard polystyrene (GPPS) with a weight-average molar mass M_w in the range from 160 000 to 400 000 g/mol.

2. The expandable styrene polymer according to claim 1 wherein the styrene copolymer used comprises a copolymer composed of styrene, acrylic acid and/or α-methylstyrene.

3. The expandable, pelletized styrene polymer material according to claim 1 or 2 which comprises from 3 to 7% by weight of an organic blowing agent.

4. A process for preparing expandable pelletized styrene polymer materials according to claim 1, comprising the steps of

   a) preparing a mixture of styrene polymers which, based in each case on the entire styrene polymer contents comprise
      i) from 0.1 to 30% by weight of a styrene copolymer with a weight-average molar mass M_w in the range from 1000 to 20 000 g/mol, and
      ii) from 99.9 to 70% by weight of standard polystyrene (GPPS) with a weight-average molar mass M_w in the range from 160 000 to 400 000 g/mol.
   b) mixing to incorporate an organic blowing agent into the polymer melt by means of a static or dynamic mixer at a temperature of at least 150°C,
   c) cooling the polymer melt comprising blowing agent to a temperature of at least 120°C,
   d) discharge via a die plate with holes whose diameter at the discharge from the die is at most 1.5 mm, and
   e) pelletizing the melt comprising blowing agent directly downstream of the die plate under water at a pressure in the range from 1 to 25 bar.

5. A process for producing moldable-foam moldings, which comprises, in a first step, using hot air or steam to prefoam expandable pelletized styrene polymer materials according to claim 1 to give foam beads whose density is in the range from 8 to 100 g/l, and, in a 2nd step, fusing these materials in a closed mold.